HALISAURUS PLATYSPONDYLUS--
THE THIRD REPORTED OCCURRENCE OF THIS MOSASAUR IN NEW JERSEY

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The locality of Big Brook in Monmouth County, New Jersey, has over the years produced a rich fauna of both invertebrate and vertebrate fossils. A number of exposures occur on the south bank of the creek. A half-dozen or so species of sharks, the cephalopod Belemnites, oyster-like pelecypods Exogyra, Gryphaea, and Ostrea, and the brachiopod Choristothyris are relatively common throughout. The outcrops at this site are composed mainly of a glauconitic marl or greensand. In March, 1980, I visited these exposures, and collected a reptilian vertebra that lay partially embedded in the sediment approximately two feet above stream level. I believe that the relatively firm glauconite that was packed within the neural canal points to the Navesink Formation of Maestrichtian, late Cretaceous age. Professor Donald Baird of the Department of Geological and Geophysical Sciences, Princeton University, prepared a number of plaster casts, and forwarded one to Dr. Dale A. Russell of the National Museum in Ottawa, Canada. One of the foremost authorities on mosasaurs, Dr. Russell wrote stating that he believed the specimen to be from Halisaurus. Professor Baird agreed.

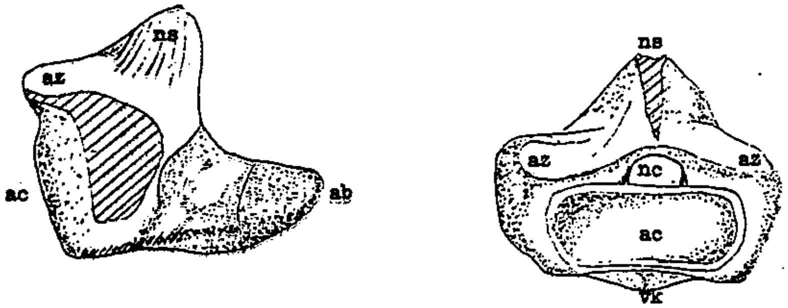
Halisaurus platyspondylus was described by O. C. Marsh (1869). Two vertebrae and a fragment of a lower jaw found by John G. Meirs at Hornerstown are the basis for the description.

The only other reported occurence in New Jersey was published by Donald Baird and Gerard R. Case (1966). Case had collected mosasaur frontal bones on a farm in Burlington County which were also identified by Dale Russell as belonging to Halisaurus. Outside New Jersey, the only other reports of this rare mosasaur are from the Niobrara and Selma Chalks (H. sternbergi and H. onchognathus, respectively).

Halisaurus vertebrae are the most lizard-like and primitive of mosasaur vertebrae. The articulating surfaces are sub-rectangular, much wider than high. This characteristic, plus the absence of zygosphenes and zygantra, distinguish these vertebrae from those of other mosasaurs. The specimen which was collected at the Big Brook locality clearly displays the elliptical outline of the articular cup. No zygosphenes are observable anteriorly, and the broken base of the neural spine makes the absence of zygantra questionable. Posterior zygapophyses, transverse processes, and a hypapophysis were not observed by the author. The ventral surface is marked by a longitudinal keel with a depression situated on either side of this keel. Measurements of the prominent features of the vertebra are:

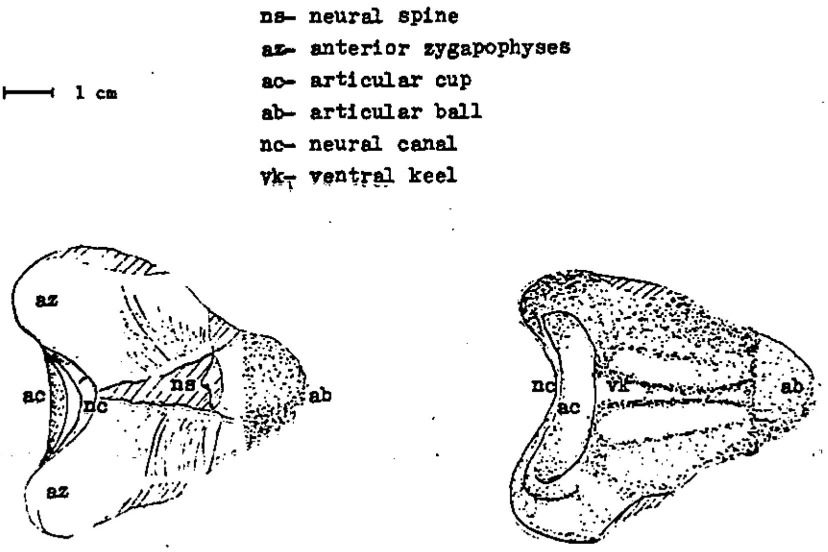
	(cm)
Centrum length from ventral surface	4.8
Width of articular cup	3.2
Height of articular cup	1.8
Total height of vertebra with broken neural spine	4.5
Distance across anterior zygapophyses	5.6
Basal width of neural canal	1.2
Anterior height of neural canal	0.7
Posterior height of neural canal	1.1
Length of neural canal	3.2

The specimen resides in the collection of the author. Professor Baird plans to deposit casts of the original at Yale (to go with the type specimen, YPM 444) and the American Museum of Natural History where it will be the only Halisaurus specimen in their collections.



Left lateral

Anterior view



Dorsal view

Ventral view

Figure 1. Halisaurus platyspondylus vertebra from Big Brook, Monmouth County, New Jersey.

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